now pending in this application. Claim 1 is the independent claim. Favorable reconsideration is respectfully requested.

In response to the Office Action's objection to the drawings and the objection to the specification, Applicants believe the amendments to the specification adequately address the Office Action's objections.

Applicants note with appreciation the indication that Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 112 set forth in the Office Action and to include all of the limitations of the base claim and any intervening claims. Applicants respectfully refrain from so amending Claim 2 at this time because Applicants believe its respective base claim is allowable for the reasons given below.

On the merits, the Office Action rejected Claims 1-10 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants believe that the amendments to Claims 1, 2, and 4 address the Office Action's rejection.

The Office Action rejected Claims 1, 3-5, and 7-10 under 35 USC § 102(e) as being anticipated by Derkits, Jr. et al. (U.S. Patent No. 5,861,665; hereinafter "Derkits"). Claims 1, 4, 5, and 6 were also rejected under 35 U.S.C. § 102(e) as being anticipated by Wolters et al. (EP 0513894B1; hereinafter

"Wolters"). Applicants respectfully submit that the pending application and claims are patentable for at least the following reasons.

Applicants' Claim 1 recites in pertinent part: "[A] semiconductor device… comprising means for preventing pollution of the circuit elements and of the substrate by hydrogen originating from an environment inside a housing enclosing a portion of the semiconductor device, characterized in that said means are formed by a layer of a material which absorbs hydrogen, referred to as hydrogen getter (10), which forms a pattern which is integrated with the circuit elements and of which an external surface (11) is exposed and in contact with said environment."

Derkits fails to recite or suggest a hydrogen getter integrated with the circuit elements. Rather, Dirks provides "a member, separate from the components, which comprises a first layer of material which forms a hydride when subject to solvated hydrogen" (Col. 1, lines 30-33). Further, Derkits teaches away from Applicants' invention by specifically separating member 31 from the components (see, e.g., Col. 3, lines 27-28). Although Derkits recites "a member, 31,… could be mounted anywhere in the cavity" (col. 2, lines 25-27), it is Applicants' understanding that "in the cavity" (ibid.) means "attached to one of the package inner walls or to the lid" (col. 3, liens 19-20).

Consequently, Derkits' device requires more complex formation procedures (i.e., forming a hydrogen getter on the sides or lid of the housing) and lacks the advantage of preventing the neutralization of charges in the metal layers or interfaces thereof either at its surface or within the material itself. Consequently, the rejection of Claim 1 as being unpatentable over Derkits is believed untenable and the invention is believed patentable for at least these reasons.

Wolters also fails to recite or suggest a hydrogen getter integrated with the circuit elements. Rather, Wolters recites "a hydrogen-absorbing layer is provided as the coating layer" (col. 2, lines 54-55, emphasis added). The term "coating" is not the equivalent of the term "integrated"--a shirt that covers a person's body is not integrated into that person. Fig. 4 of Walters shows hydrogen-absorbing coating layer 30 sandwiched between insulating layer 40 and electrode 13. However, this configuration may cause the capacitor to short-circuit. To prevent such short-circuiting, Wolters includes "an insulating auxiliary layer… between the hydrogen-absorbing layer and the surface of the semiconductor body" (col. 4, liens 37-40). This auxiliary layer can be seen in Fig. 5 of Wolters where the hydrogen-absorbing coating layer 30 is sandwiched between insulating layers 40 and 50. As stated in Applicants specification on page 2, paragraph 3:

> Experiments have shown that the use of a metal layer made of a hydrogen-absorbing metal sandwiched between two insulating layers so as to form a composite film covering the integrated circuits has a detrimental influence on the integrated circuit because this composite film constitutes a strong parasitic capacitance which downgrades the performance levels of all elements of the integrated circuit even at room temperature. Such a layer realized in accordance with the cited patent application should accordingly be steered clear of altogether.

Consequently, Wolters teaches away from Applicants' claimed invention.

Further, Wolters does not protect against hydrogen poisoning from the protective housing because no part or surface of the hydrogen-absorbing coating layer 30 is exposed. Consequently, Wolters' device lacks the advantage of preventing the neutralization of charges in the metal layers or interfaces thereof either at its surface or within the material itself. Additionally, Wolters' device requires additional insulating layers and deposition steps. Consequently, the rejection of Claim 1 as being unpatentable over Wolters is believed untenable and the invention is believed patentable for at least these reasons.

Dependent Claims 2-7 and 9-10 depend from independent Claim 1 discussed above and are believed patentable for at least the same reasons. In addition, however, each is also deemed to define an additional aspect of the invention, and should be individually considered on its own merits.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application. Please charge any additional fees which may now or in the future be required in this application, including extension of time fees and fees for claims added upon amendment, but excluding the issue fee unless explicitly requested to do so, and credit any overpayment, to Deposit Account No. 14-1270.

Respectfully submitted,

by _____

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited this date with the United States Postal Service as first-class mail in an envelope addressed to:
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On July 2, 2001

By Valerie Deers

APPENDIX A

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1. (Amended) A semiconductor device comprising integrated circuit elements realized in a stack of layers on a substrate and comprising means for preventing pollution of the circuit elements and of the substrate by hydrogen originating from ~~their~~ an environment inside a housing enclosing a portion of the semiconductor device, characterized in that said means are formed by a layer of a material which absorbs hydrogen, referred to as hydrogen getter (10), which forms a pattern which is integrated with the circuit elements and of which an external surface (11) is exposed and in contact with said environment.

2. (Amended) A device as claimed in claim 1, characterized in that the hydrogen getter layer is formed on ~~the~~ a surface of the substrate and in that the circuit elements comprise an upper protective layer which has an opening for exposing the upper surface (11) of said hydrogen getter layer (10).

4. (Amended) A device as claimed in claim 1, characterized in that the hydrogen getter layer forms patterns arranged between the integrated circuit elements or patterns arranged along ~~the~~ a periphery of the integrated circuits.

APPENDIX B

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Page 3, paragraph 2:

According to the invention, this detrimental effect is suppressed by means of a device provided with means ~~as defined in claim 1~~ for preventing pollution of the circuit elements via a layer of material which absorbs hydrogen and which forms a pattern integrated with the circuit elements.

Page 5, paragraph 1:

Fig. 2A shows a stack of epitaxial layers realized on a semi-insulating substrate 1 made of GaAs for the realization of a PHEMT, by way of non-limitative example. This stack comprises, starting from the substrate: a buffer layer 2 of undoped GaAs with a thickness of the order of 0.5 to 1 µm; two mutually adjoining layers which form a heterostructure, i.e. having different forbidden bandwidths or gaps, with the layer 3 of InGaAs which is not doped, has the smaller forbidden bandwidth, and has a thickness of the order of 10 to 15 nm, and with the layer ~~4~~ 4a, 4b of AlGaAs which is n^+ doped and has a thickness of approximately 20 to 50 nm; and then a covering layer 5 of n^+ doped GaAs with a thickness of approximately 20 to 50 nm. The layer ~~4~~ 4a, 4b forms an etch stop layer with respect to the

layer 5.